Please check the examination details below before entering your candidate information	
Candidate surname	Other names
Centre Number	Candidate Number

Pearson Edexcel Level 3 GCE

Release date: Wednesday 1 September 2021
Submission date: Sunday 15 May 2022

	Paper Reference	9MT0/02

Music Technology

Advanced

COMPONENT 2: Technology-based composition

Logbook and authentication form

You must have: The brief and video provided by Pearson on the website.

Instructions for Teachers

- The logbook and authentication form must be completed and presented for assessment along with the technology-based composition.
- Technology-based compositions must be submitted digitally in the format detailed in the Administrative Support Guide found on the Pearson website.
- Each candidate submission must be presented separately, and this must be clearly marked with the paper reference, centre number, candidate name and candidate number.
- Centres must retain backup copies of all technology-based compositions and proprietary software files.
- All assessment materials must be submitted by 15 May 2022.

Information for Candidates

- The total mark for this component is 60.
- Complete the sections in the spaces provided. There may be more space than you need.
- Do not attach additional material.
- The sections in this booklet ask you for information which is essential for the examiner who assesses your work.
- If you do not complete the logbook and authentication form, your work may not be fully credited.

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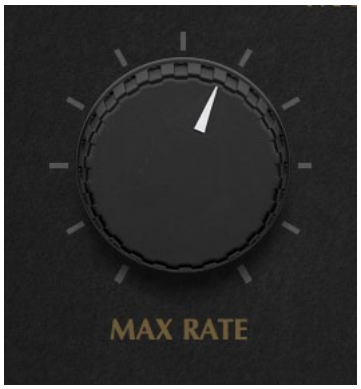
Pearson

Brief Chosen	Brief 3: The Sound of Digital
Title of your composition	
Clock Watcher My song is about being trapped in the system of working. You work so you have money to have free time, but most your life is spent working. You're stuck working until you're old and when you don't have to work you don't have the energy to do what you wanted to do.	

Use the following tables to detail how you have created sounds for your technology-based composition.

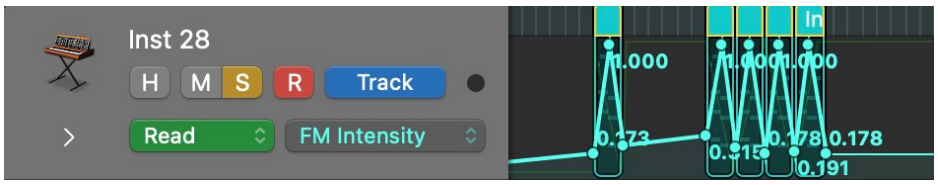
Synthesis	
Timbre/instrument name	**Designing own sounds, manipulation using LFO, filter, envelopes, automation or real time control.**
Lead Synth/ES2	• Created the lead synth starting with the ES2 analog saw 'init' setting. • Beginning at 00:16 an ES2 synth with 72% triangle wave and 28% sine wave plays with a triangle LFO, at rate 5.9 Hz, applied to the filter cut off. It oscillates the low pass filter cut off back and forth with resonance applied. • A phaser is also applied with medium intensity. A filter envelope is also applied along with a short attack and long decay to zero sustain. This creates the 70's style ambient lead synth sound I was looking for.

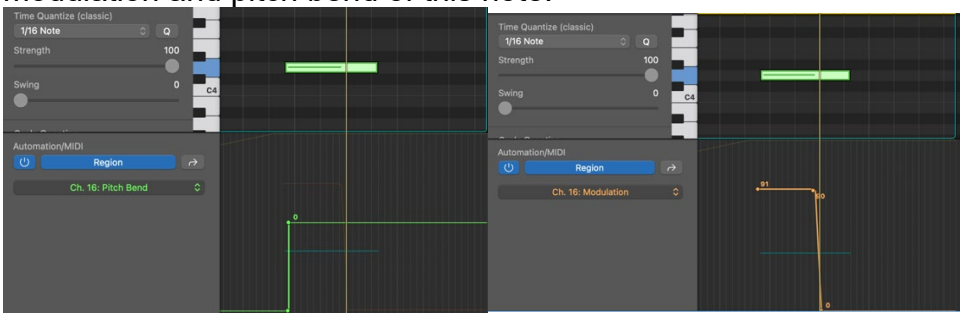
	• Using the same synth, at 00:54 a synth cord part begins gliding up into the chord. To achieve this, I changed the bend range on the synth to 12 semitones.
B3 Organ	• At 00:16 a B3 organ with a rotor cabinet to achieve an organ sound begins. I have changed the length of the “feet” to alter the additive synthesis to create the sound I wanted. • Also changed the rate of the rotor cabinet to 4.6. 
Arpeggiated Lead / Retro FM Synth	At 00:47 and playing through both choruses, an FM synth to add layers to my chorus is used. Over the length of the chorus I automated the FM intensity increase and decrease. • Changed the harmonic and inharmonic levels to create my desired sound (13% and 100% respectively).

- Changed the cut off of the low pass filter on the FM synth to 0.362 to attenuate some harsh highs.
- The synth is then also played by an arpeggiator set to 2 octave range at a rate of 1/16.

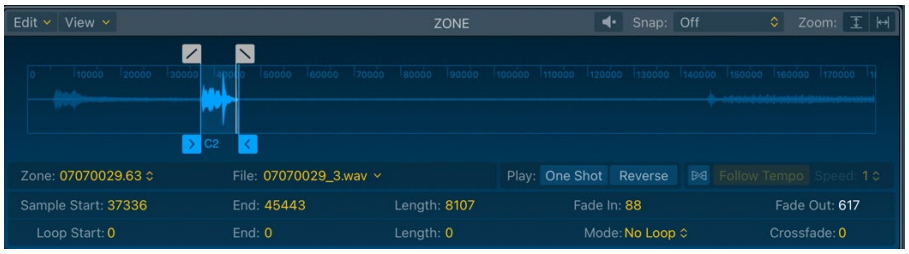
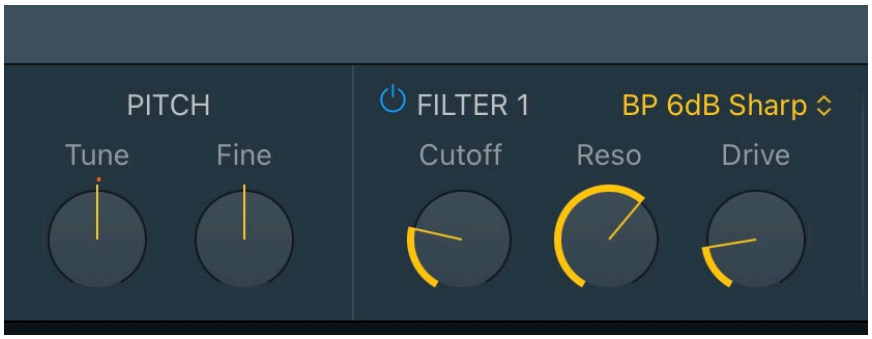
I have used FM synthesis to create an intense layered sound reflecting the message of the song.

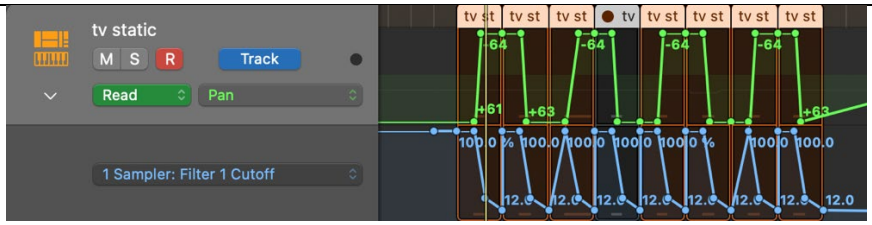
- 16th note arpeggiator used to create a busy sound, representing a stressful office.

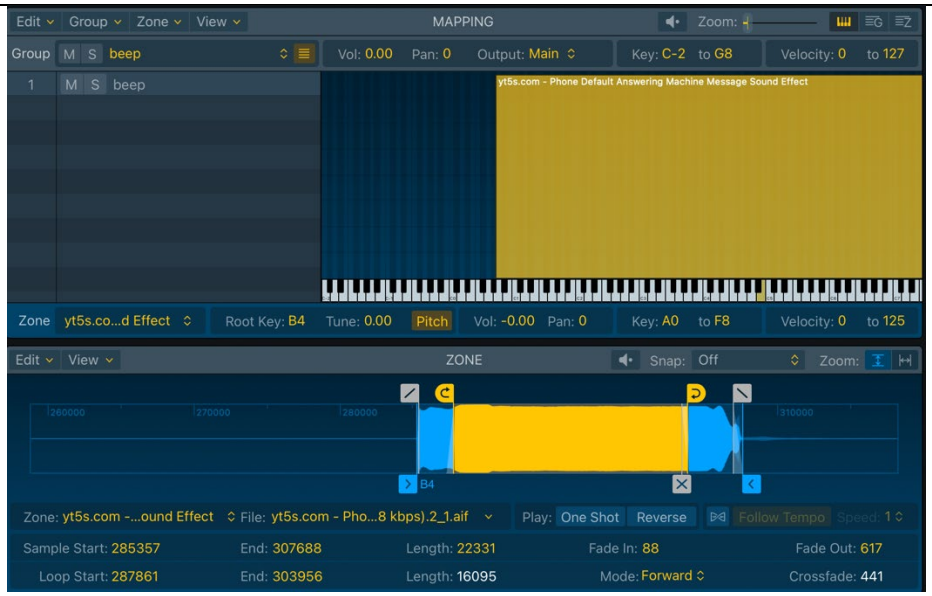


Ambient Chords Synth / ES2	• At 00:47 and in all choruses, I created from the ES2 analog saw 'init' synth with 34% triangle wave and 66% sine wave an octave down and 17 cents flat plays. • The LFO is applied to the amplifier and its rate is automated, to achieve a changing tremolo effect. I have automated the LFO to get a changing tremolo speed, to create a more layered, crowded sound.
Lead Guitar Accompany / Analog Retro Synth	At 01:48 I have used an analog retro synth to accompany the final guitar solo note. I used MIDI automation to manipulate the modulation and pitch bend of this note. 
Bass Synth / ES2	At 01:14 I have I have taken an ES2 with 70% triangle and 30% sawtooth waves, and added some sine wave to the amplifier. I have applied the filter envelope to a low pass filter opening, to achieve a squelchy sound. I have automated the starting LPF cutoff, to increase overtime.

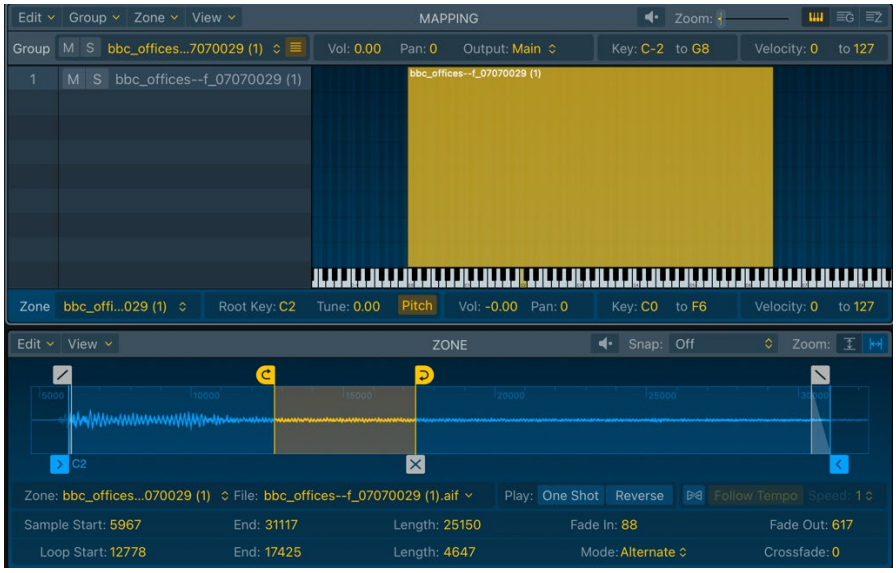
Harmony Synth / Alchemy	At 01:33 I have taken the 70s Analog Synth Lead preset on the Alchemy synthesizer and altered the glide 72.5% to harmonise the vocals.

Sampling	
Timbre/ instrument name	**Using short audio files to develop new sonic elements; pitch-mapping, cutting/trimming, looping.**
Rhythmic Technology	Inspired by the intro to ‘Money’ by Pink Floyd Starting from 00:00 and appearing throughout the song several times, 00:58, 01:48, I took samples of ringtones, fax machines, printers and phones. I **truncated** these samples adding panned delay and reverbs to create a rhythmic pattern that could be used as a rhythmic backing track for the main riff of the song. I left the sounds unchanged from what they originally sounded like to achieve the sound of a workplace. For example: 
TV static	At 00:19 I have converted a sample of some TV static to a sampler track and panned it right to left as it plays. To achieve a further sweeping affect I have taken a band pass filter with high resonance and automated it’s cut off to close. 

	 I have also **looped** the one part of the static to get a more uniform sound as the filter sweeps across the sample.
Dot matrix printer, dial tone	I have at 00:15 and throughout the first verse taken and **truncated** a dot matrix printer to accompany the snare, adding reverb and EQ. At 01:06 I have taken a dial tone and panned it from left to right with lots of reverb applied.
Answer phone	I have taken a sample of an answer phone message and created three samples out of it: the beginning, a **looped** section on the letter ‘p’ and the end sample. This way I could achieve a **stuttering** of the beginning of ‘please’ by looping the letter ‘p’. The answer phone sample of ‘no-one is available to take your call’ is similar to the chorus message – ‘life goes on, it doesn’t stop for you’ (people aren’t going to listen).
Voicemail beep	At 01:00 I have taken a voicemail beep and converted it to a **sampler track** and **pitched** it so that it plays a note in tune with the rest of the song. I rooted the original sample to the actual note it was and then played a note of the keyboard that would fit. I also **looped** the sample to get a longer tone.

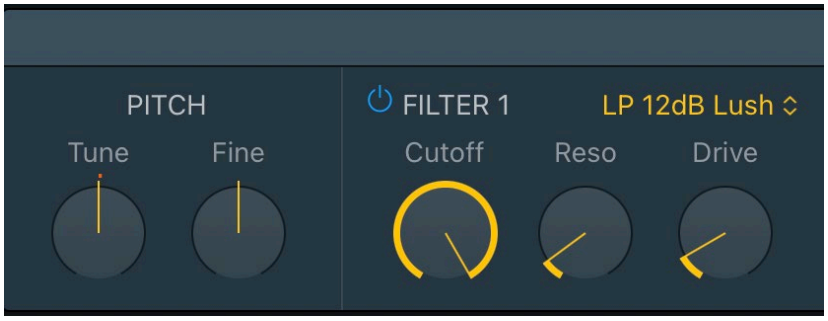

Edit Group Zone View
MAPPING
Zoom:
Group M S beep
Vol: 0.00 Pan: 0 Output: Main
Key: C-2 to G8 Velocity: 0 to 127
1 M S beep
yt5s.com - Phone Default Answering Machine Message Sound Effect
Zone yt5s.co...d Effect
Root Key: B4 Tune: 0.00 Pitch Vol: -0.00 Pan: 0
Key: A0 to F8 Velocity: 0 to 125
Edit View
ZONE
Snap: Off
Zoom:
B4
Zone: yt5s.com -...ound Effect
File: yt5s.com - Pho...8 kbps).2_1.aif
Play: One Shot Reverse
Follow Tempo
Sample Start: 285357 End: 307688 Length: 22331 Fade In: 88 Fade Out: 617
Loop Start: 287861 End: 303956 Length: 16095 Mode: Forward Crossfade: 441

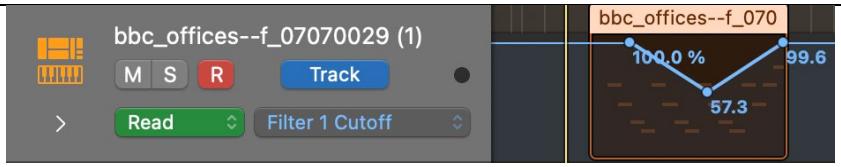
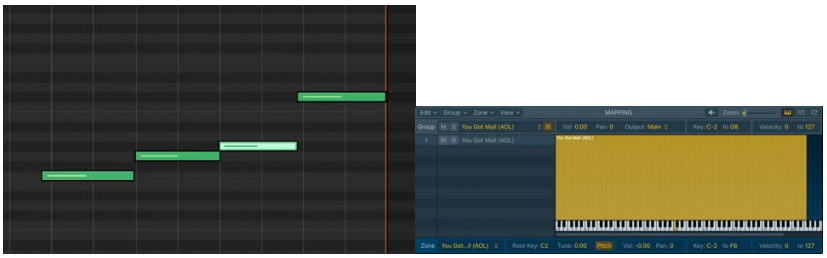
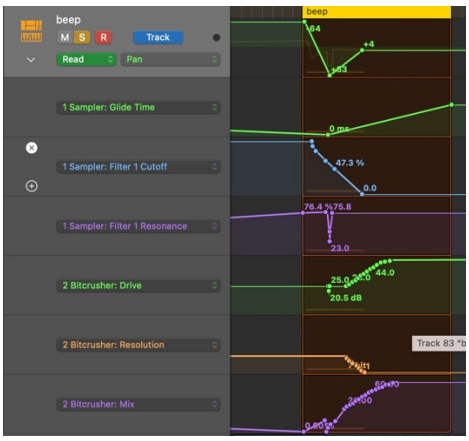
Printer noise	At 01:02 I take a printer noise and **pitch shift** it to play a melody in the same key as my song. I rooted the sample to the actual note it is, before spreading that sample across the keyboard to create my own instrument. I also used **alternate looping** to extend the duration of the sample.

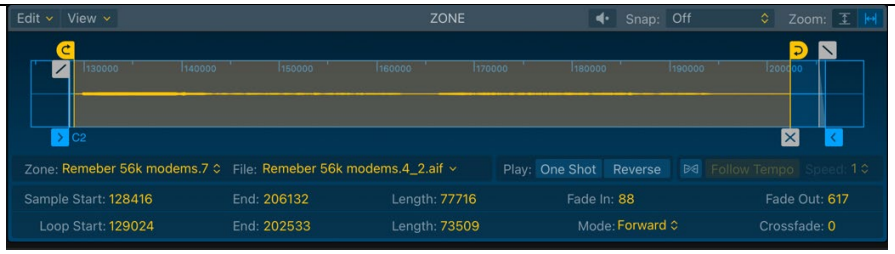

Edit Group Zone View
MAPPING
Zoom:
Group M S bbc_offices...7070029 (1)
Vol: 0.00 Pan: 0 Output: Main
Key: C-2 to G8 Velocity: 0 to 127
1 M S bbc_offices--f_07070029 (1)
bbc_offices--f_07070029 (1)
Zone bbc_offi...029 (1)
Root Key: C2 Tune: 0.00 Pitch Vol: -0.00 Pan: 0
Key: C0 to F6 Velocity: 0 to 127
Edit View
ZONE
Snap: Off
Zoom:
C2
Zone: bbc_offices...070029 (1)
File: bbc_offices--f_07070029 (1).aif
Play: One Shot Reverse
Follow Tempo
Sample Start: 5967 End: 31117 Length: 25150 Fade In: 88 Fade Out: 617
Loop Start: 12778 End: 17425 Length: 4647 Mode: Alternate Crossfade: 0

I have also automated the filter cut off of the low pass filter over the duration of the sample part.

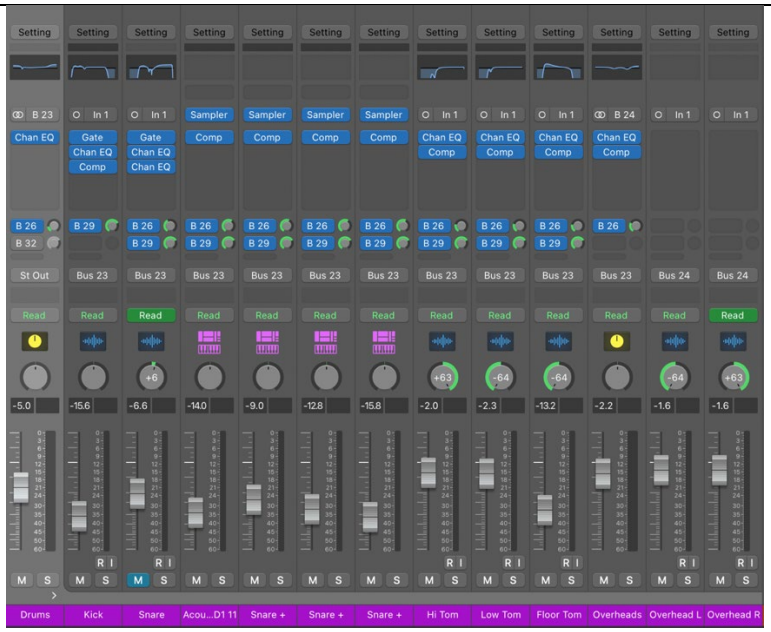
The closing cut off represents the trapped feeling of the songs message.



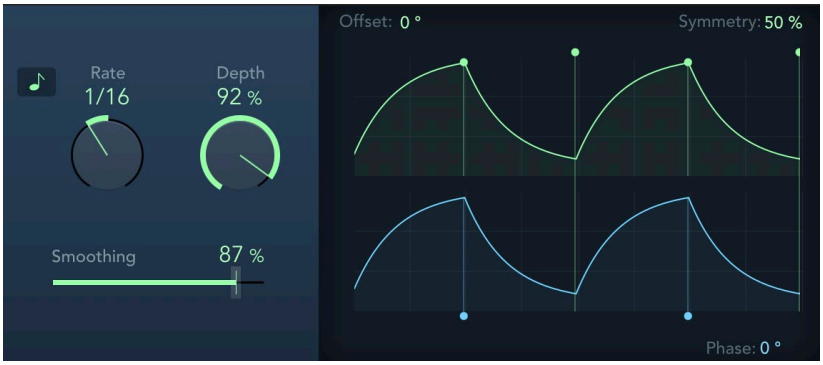
	
"You've got mail"	I have **pitch-mapped** a sample of "you've got mail" at 01:13 to achieve an increasing pitch effect. The raising pitch represents increasing stress levels. 
Beep descending in pitch	At 01:48 I have taken a beep sound and automated the cut off of a low pass filter with lots of resonance to get a descending pitch sound. As the cut off closes I have increased the drive and resolution of a **bitcrusher** to make the sound dirtier and grittier.  I also **looped** the sample to extend it's length.
Modem	At 01:52 I have taken a modem sample and altered the **pitch bend range** on the sampler. Using the pitch wheel, I played a looped version of the sample pitching the sample downwards to get a descending tone. The descending pitch of this sample and the descending Beep sample, creates a sound evoking a computer breaking/shutting down.

	
Sampled vocals	Have cut out the line ‘to get by’ and turned it into a **sampler** track. Have then **stuttered** the sample to create a call and response.

Creative effects	
Timbre/ instrument name	**Adding effects or processors to modify existing sounds; control of parameters.**
Drums	• **Parallel compression**: I have used parallel compression on all the drums except the overheads, routed to bus 29, to give them more punch and stand out in the mix more. • I have applied **drum reverb** to all the drums using ‘ChromaVerb’ and applying EQ to the reverb tail, routed through bus 26. • I have used drum replacement software to replace all the snares with multiple layered sampled snares to get a fuller more consistent tone. • I have used EQ to isolate each drum sound and help distinguish each drum from one another.

<table>
<tr><td></td><td> 
</td></tr>
<tr><td>Guitars</td><td>

- **Tremolo**: At 00:08 a guitar with tremolo is played. It helps it stand out from the other guitars and adds rhythmic interest.

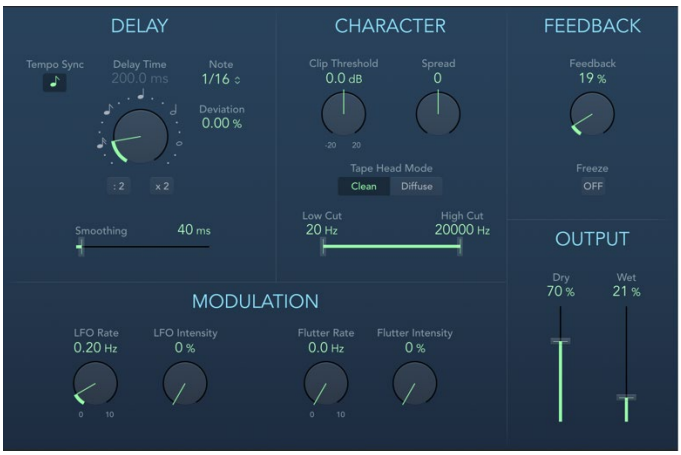


- I have **double tracked** the guitar riff to give the sound space and fill out the sound more.
- Added **EQ** to all guitars to isolate them and give them a high end boost, to make them brighter and clearer.
- Added a **chorus peda**l to guitar at 00:18 along with high amounts of reverb.

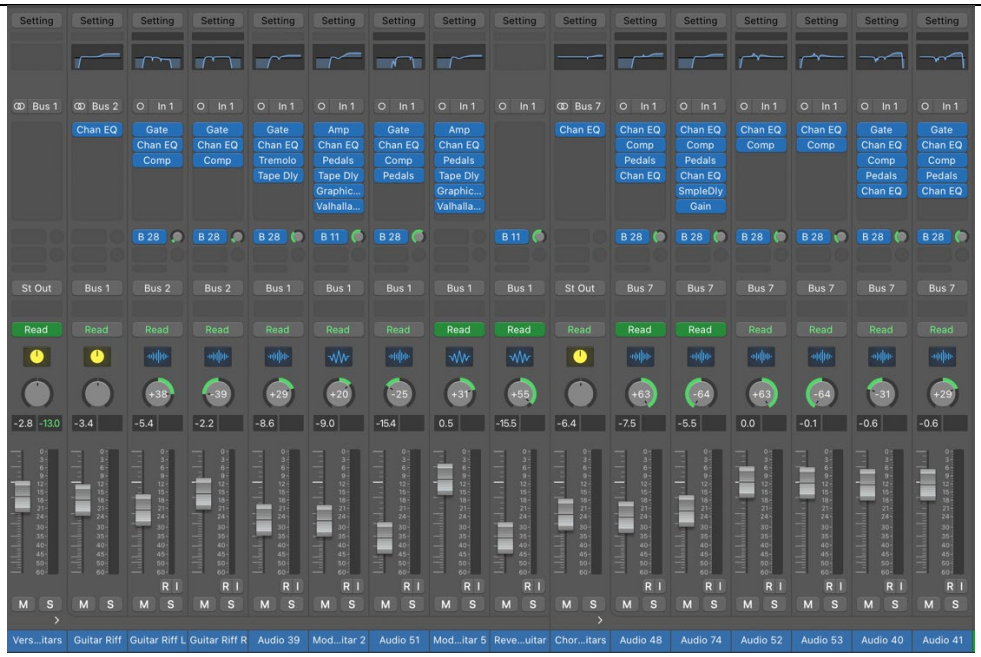
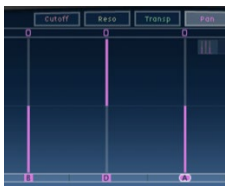
</td></tr>
</table>

- In the **choruses** I have added **distortion** on the guitars using the pedal board, to more accurately control the amount of distortion required.

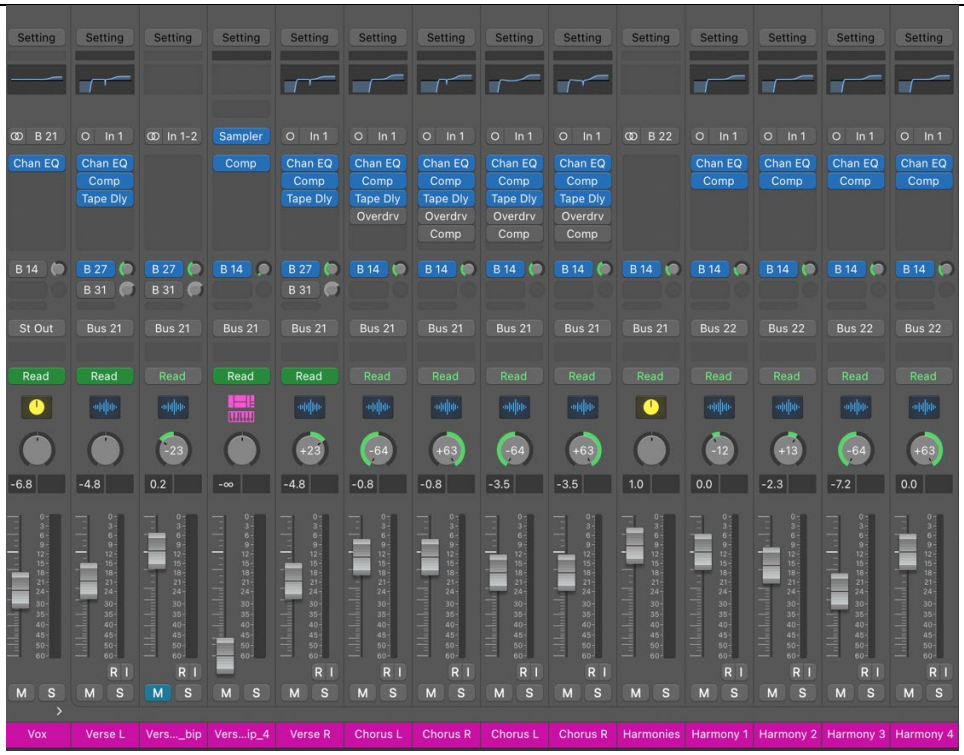
- I have bussed the **reverb** to buss 28 to get a consistent reverb between guitars.
- I have used **tape delay** on some guitars to fill out the sound and add some warmth.



- I did all this to achieve a guitar sound palette similar to that of 70’s and 80’s rock.

	
Organ	• I have **panned** the dry organ sound left and, using bus 33, panned the reverb right.
Samples	• I have used the **delay designer** to control exact **delays** and the pans of those delays to add a sense of space to the stereo field. 

	• Used an upwards and downwards multiband compressor on the answer phone vocal sample at 00:54, to give the sample a harsh tone.
Vocals	• I have automated a bus with a large reverb and delay within to turn on at 01:06. • This compliments the lyrics of feeling trapped in a system. • I've bussed reverb to all the vocal channels to join them all together in a coherent sound. • I have also added a high shelf filter to all the vocal audio tracks to give the vocals 'air' and to space out the mix. • In the harmonies under the lead vocals I have panned each harmony to its own part of the stereo field to give it space. This helps give them a large melancholic sound.



State any parts played by other performers and details of how you directed the performance		
Instrument/ Part	**How you directed the performance**	**Editing and manipulation of recorded audio/MIDI**
Drums	I originally programmed all drums as MIDI. I then gave this track to the drummer to listen to and play along with live. Once we had agreed the live performance, I muted the MIDI drums and recorded the drummer during a live session which I set up and controlled.	I did 7 takes and took the best sections from each take to make up the part. Applied a noise gate to the kick mic, snare mic and tom mics to isolate the sound from the other drums and cymbals. I applied EQ, reverb and compression to all tracks to tighten up the sound. Used drum replacement software to replace the snare with sampled snares to have a clearer more consistent snare sound. Applied parallel compression to kick snare and toms, but left it off overheads. Panned overheads hard left and right to give the drums space.